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November 27, 2006

Capt Jeremy Duncan, USMC  
C4I Interoperability/Integration Officer GIG-Edge Tactical Networks Branch  
Network and Transport Division Joint Interoperability Test Command Ft  
Huachuca, AZ

RE: Juniper M-series router conformance

Dear Capt. Duncan,

The Juniper router product line consisting of M-series (M7i, M10i, M20, M40e) all run the exact same Juniper binary software image (JUNOS). The JUNOS code that handles IPv6 will be exactly the same across these router platforms.

The differences in the routers are based on scale, the number and speed of interfaces that the platform supports. Many of the interfaces themselves are portable across these platforms.

Therefore, once IPv6 conformance has been established on one Juniper M-series router, that same IPv6 compliance can be granted across all M-series platforms.

Router compliant responses listed below are listed per the following document:

DEPARTMENT OF DEFENSE  
INTERNET PROTOCOL  
VERSION 6  
GENERIC TEST PLAN  
VERSION 2  
Appendix F  
Dated August 2006

**Compliance items listed are based on JUNOS version 7.6.**

## Normal Router (NR) Conformance Checklist

- Core Requirements:
  1. RFC 1981: Path MTU Discovery for IPv6 (*mandated*) - *Comply*
  2. RFC 2401: Security Architecture for Internet Protocol (*mandated*) – *Comply (Requires Adaptive Services PIC)*
  3. RFC 2460: Internet Protocol v6 (IPv6) Specification (*mandated*) - *Comply*
  4. RFC 2461: Neighbor discovery for IPv6 (*mandated*) - *Comply*
  5. RFC 2462: IPv6 Stateless Address Auto-configuration (*mandated*) - *Comply*
  6. RFC 4443: Internet Control Message Protocol (ICMPv6) (*MUST*) - *Comply*
  7. RFC 4291: IPv6 Addressing Architecture (*MUST*) - *Comply*
  8. RFC 2401: Security Architecture for the Internet Protocol (*MUST*) – *Comply (Requires Adaptive Services PIC)*
  
- Routing and Switching:
  1. RFC 1570: PPP LCP Extensions (optional) – not supported
  2. RFC 1771: Border Gateway Protocol version 4 (*mandated*) - *Comply*
  3. RFC 1772: Application of the Border Gateway Protocol in the Internet (*mandated*) - *Comply*
  4. RFC 1989: PPP Link Monitoring (optional) – not supported
  5. RFC 1994: PPP CHAP (optional) – not supported
  6. RFC 2545: Border Gateway Protocol Extensions for IPv6 Interdomain Routing (*mandated*) - *Comply*
  7. RFC 2581: TCP Congestion Control (*mandated*) - *Comply*
  8. RFC 2684: Multi-protocol Encapsulation over ATM Adaptation Layer-5 (optional) - *Comply*
  9. RFC 2740: Open Shortest Path First for IPv6 (*mandated*) - *Comply*
  10. RFC 2784: Generic Routing Encapsulation (*mandated*) - *Comply* (Requires Adaptive Services PIC). Juniper supports IPv6 over IPv4 tunnels but doesn't support IPv4 over IPv6 tunnels.
  11. RFC 2858: Border Gateway Protocol Extensions (*mandated*) - *Comply*
  12. RFC 3031: Multi-protocol Label Switching Architecture (*mandated*) – *Comply*. Juniper supports IPv4 tunnel establishment.
  13. RFC 4271: A Border Gateway Protocol 4 (BGP-4) (*MUST*) supersedes RFC 1771- *Comply*

- Transition Mechanisms:
  1. RFC 2473: Generic Packet Tunneling in IPv6 Specifications (*mandated*) – *Partially compliant. Juniper supports IPv6 over IPv4 tunnels but doesn't support IPv4 over IPv6 tunnels.*
  2. RFC 4213: Transition Mechanisms for IPv6 Host and Routers (*mandated*) - *Comply*
  
- Information Assurance:
  1. RFC 4301: Security Architecture for the Internet Protocol (*recommended*) - *Comply (Requires Adaptive Services PIC).*
  2. RFC 4302: IP Authentication Header (AH) (*recommended*) - *Comply (Requires Adaptive Services PIC).*
  3. RFC 4303: IP Encapsulating Security Payload (ESP) (*MUST*) - *Comply (Requires Adaptive Services PIC).*
  4. RFC 4304: Extended Sequence Number (ESN) Addendum to IPsec Domain of Interpretation (DOI) for Internet Security Association and Key Management Protocol (ISAKMP) (*SHOULD+*) *Not Supported*
  5. RFC 4305: (ESP and AH) Cryptographic Algorithm Implementation Requirements for Encapsulating Security Payload (ESP) and Authentication Header (AH) (*MUST*- *Comply (Requires Adaptive Services PIC).*
  6. RFC 4308: Cryptographic Suites for IPsec (*MUST*) - *Comply (Requires Adaptive Services PIC).*
  
- Multicasting:
  1. RFC 2362: Protocol Independent Multicast-Sparse Mode (PIM-SM): Protocol Specification (*mandated- Comply*
  2. RFC 2710: Multicast Listener Discovery (MLD) for IPv6 (*mandated*) - *Comply*
  3. RFC 3376: Internet Group Management Protocol, Version 3 (*mandated*) - *Comply*
  4. RFC 3810: Multicast Listener Discovery Version 2 (MLDv2) (Emerging June 05) Host must generate MLD requests. (*mandated*) - *Comply*

- Network Operations and Management:
  1. 3414 User-based Security Model (USM) for version 3 of the Simple Network Management Protocol (SNMPv3). - *Comply*
  
- Quality of Service
  1. RFC 2474: Definition of the DiffServ Field in the IPv4 and IPv6 Headers. - *Comply*
  
- Connection Technologies
  1. RFC 2464, Transmission of IPv6 Packets over Ethernet Networks - *Comply*
  2. RFC 2472, IP Version 6 over PPP. - *Comply*

Please feel free to contact me at 571-203-1765 if you have additional questions.

Thanks,



Bob Stevens  
Vice-President of Federal Sales  
of JUNIPER NETWORKS, INC.